

## CLIMATOLOGICAL SUMMARY.

By Mr. P. C. DAY, Acting Chief, Climatological Division.

## TEMPERATURE AND PRECIPITATION BY SECTIONS, MARCH, 1909.

In the following table are given, for the various sections of the Climatological Service of the Weather Bureau, the average temperature and rainfall, the stations reporting the highest and lowest temperatures with dates of occurrence, the stations reporting greatest and least monthly precipitation, and other data, as indicated by the several headings.

The mean temperatures for each section, the highest and

lowest temperatures, the average precipitation, and the greatest and least monthly amounts are found by using all trustworthy records available.

The mean departures from normal temperature and precipitation are based only on records from stations that have ten or more years of observation. Of course the number of such records is smaller than the total number of stations.

Section.	Temperature—in degrees Fahrenheit.								Precipitation—in inches and hundredths.							
	Section average.	Departure from the normal.	Monthly extremes.				Section average.	Departure from the normal.	Greatest monthly.				Least monthly.			
			Station.	Highest.	Date.	Station.			Station.	Amount.	Station.	Amount.	Station.	Amount.	Station.	Amount.
Alabama.....	56.0	0.0	Ozark.....	89	8	Oneonta.....	25	16	Montgomery.....	16.51	Spring Hill.....	2.03				
Arizona.....	50.4	-3.7	Mohawk Summit.....	96	22	Valley Head.....	25.4	14° 8'	Chiarsons Mill.....	4.44	Mohawk Summit.....	0.14				
Arkansas.....	52.7	+0.2	Lewisville.....	84	2	Flagstaff, A.....	0	24	Warren.....	6.28	Dutton.....	1.65				
California.....	48.5	-2.4	McNeil.....	84	2	Bergman.....	16	15	Magalia.....	12.77	Mojave.....	0.00				
Colorado.....	33.2	-1.5	Blythe.....	90	31	Dodd City.....	16	15	Corona.....	8.26	Delta, River Portal.....	T.				
Florida.....	66.2	+0.2	Hoehne.....	83	1	Fordyce Dam.....	4	7	Fenolloway.....	7.30	Sand Key.....	0.15				
Georgia.....	56.0	+0.3	6 stations.....	92	6 d't's	Wagon Wheel Gap.....	-27	12	Gore.....	12.85	Blakely.....	1.39				
Hawaii (February).....	67.3	.....	Blackly.....	89	28	Live Oak, I.....	30	1	Montgomery.....	16.51	Kekaha, Kauai.....	22.62				
Idaho.....	37.7	+2.0	Vailosta.....	89	7	Diamond.....	21	16	Chiarsons Mill.....	4.44	Oro Fino.....	2.93				
Illinois.....	39.5	-0.1	Kihel, Maui.....	88	19	Humunula, Hawaii.....	34	2	Warren.....	6.28	Cairo.....	7.10				
Indiana.....	40.0	0.0	Dent.....	74	23	Chesterfield.....	-16	12	Magalia.....	12.77	South Bend.....	1.66				
Iowa.....	32.5	-1.5	Mascoutah.....	73	2	LaNark, Zion.....	5	17	Rome.....	6.06	Denison.....	0.28				
Kansas.....	42.1	0.5	Jeffersonville, Rome.....	70	19	3 stations.....	10	17	Perry.....	5.00	McPherson.....	0.48				
Kentucky.....	44.7	-1.5	St. Charles.....	71	23	3 stations.....	-15	17	Le Roy.....	3.68	Scott.....	3.22				
Louisiana.....	61.2	+0.2	Kingman.....	86	3	Hugoton.....	3	12, 13	Alpha.....	8.33	Burrwood.....	0.81				
Maryland and Delaware.....	40.4	-1.7	Middlesboro.....	74	9	Scott, Williamsport.....	17	17	Anmite.....	7.30	Cumberland, Md.....	1.75				
Michigan.....	29.2	-0.3	3 stations.....	90	28, 29	Robeline.....	26	15	Annapolis, Md.....	5.82	West Branch.....	0.35				
Minnesota.....	26.1	+1.0	Cambridge, Md.....	80	10	Deer Park, Md.....	9	23	Blaney.....	4.10	St. Peter.....	T.				
Mississippi.....	57.6	-0.2	Clinton.....	69	28	Ewen.....	-24	5	Grand Meadow.....	2.00	Woodville.....	1.79				
Missouri.....	44.5	+0.3	Natchez.....	86	6	Bagley.....	-26	17	Agricultural College.....	12.68	Warrensburg.....	0.60				
Montana.....	32.2	+2.9	Leakesville.....	86	29	Ripley.....	27	4	Sikeston.....	6.97	3 stations.....	T.				
Nebraska.....	35.0	-0.4	Warsaw.....	81	23	University.....	9	17	Virginia City.....	3.76						
Nevada.....	38.8	+0.1	Raymond.....	70	18	Bowen.....	-35	11	2 stations.....	2.60	2 stations.....	T.				
New England*.....	31.2	+0.3	Beaver City.....	80	24	Fort Robinson.....	-15	8	2 stations.....	1.43	Humboldt.....	T.				
New Jersey.....	38.3	-0.7	Logan.....	80	15	Hay Springs.....	-10	11	Palmetto.....	5.85	St. Johnsbury, Vt.....	0.72				
New Mexico.....	41.6	-3.1	Norwalk, Conn.....	61	10	Halleck.....	-10	11	Bar Harbor, Me.....	5.85	Culvers Lake.....	2.81				
New York.....	29.4	-1.6	Waterbury, Conn.....	61	10	Van Buren, Me.....	-22	1	Trenton.....	4.66	Monument.....	T.				
North Carolina.....	49.1	-1.4	3 stations.....	74	10	Layton.....	-6	6	Mountain Air.....	4.92	Hemlock Lake.....	0.74				
North Dakota.....	24.1	+3.2	Monument.....	90	26, 28	Rocciads.....	-17	12	Morehouseville.....	5.88	Wilnington.....	0.89				
Ohio.....	37.2	-1.9	Fayetteville.....	66	10	Gabriels.....	-20	21	Sunburst.....	11.29	Portal.....	0.00				
Oklahoma.....	49.5	-1.2	Orange.....	61	25	Mount Airy.....	15	16	Bottineau.....	2.57						
Oregon.....	44.2	+1.6	Ironston, Portsmouth.....	70	19	Cando.....	-24	17	Waynesville.....	1.76						
Pennsylvania.....	35.6	-1.8	Temple.....	91	5	Hansboro.....	-24	16	New Alexandria.....	4.78						
Porto Rico.....	75.0	+1.0	Toledo.....	78	15	Bucyrus.....	6	17	Supply.....	0.12						
South Carolina.....	54.1	-0.8	Hanover.....	74	10	Green Hill.....	6	18	Hartshorne.....	3.89						
South Dakota.....	30.9	+1.3	3 stations.....	75	23, 25	Kenton.....	-6	12	Prineville.....	9.75						
Tennessee.....	49.5	+0.2	Ottumwa.....	75	23, 25	Range.....	-4	5	Everett.....	1.33						
Texas.....	59.5	+2.0	Dyersburg.....	81	26	Pocono Lake.....	5	6	Indiana.....	4.90						
Utah.....	37.4	-1.2	Zapata.....	103	27, 28	Cavey.....	49	1	Guaniaca Centrate.....	0.19						
Virginia.....	48.6	-1.8	St. George.....	78	15	3 stations.....	27	4, 5	Jacksonboro.....	10.06	Dillon.....	1.54				
Washington.....	48.3	+1.4	Doswell.....	82	10	Cascade Springs.....	9	8	Vernillion.....	1.05	6 stations.....	T.				
West Virginia.....	40.8	-3.0	Mottinger's Ranch.....	76	16	Rugby.....	16	5	Newport.....	8.45	Dyersburg.....	2.60				
Wisconsin.....	28.6	-0.3	Zindel.....	76	31	Dalhart.....	0	12	Hillsboro.....	4.35	2 stations.....	0.00				
Wyoming.....	29.3	-0.1	Logan.....	83	9	Plemons.....	0	13	Henefer.....	3.53	Green River, Wellington, Cape Henry.....	0.00				
			Grand River Locks.....	58	31	Scofield.....	-21	11	Granite Canyon.....	5.33	Tleton.....	0.00				
			Gillette.....	67	17	Blackburg.....	11	4	Warsaw.....	7.98	Valley Fork.....	1.10				
			Tensleep.....	67	23, 25	Northport.....	7	7	Quinault.....	11.23	Solon Springs.....	0.31				
						Arbovale.....	10	16	Princeton.....	8.66	Basin.....	T.				
						Long Lake.....	-22	5	Chilton.....	2.68						
						Lake Yellowstone.....	-29	11	Lake Yellowstone.....	5.33						

\* Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut.

## DESCRIPTION OF TABLES AND CHARTS.

By Mr. P. C. DAY, Acting Chief, Climatological Division.

For description of tables and charts see page 34 of Review for January, 1909.

TABLE I.—Climatological data for U. S. Weather Bureau stations, March, 1909.

Stations.	Elevation of instruments.		Pressure, in inches.		Temperature of the air, in degrees Fahrenheit.								Precipitation, in inches.		Wind.		Maximum velocity.		Clear days.	Party cloudy days.	Cloudy days.	Average cloudiness during daylight, tenths.	Total snowfall.									
	Barometer above sea level, feet.	Thermometers above ground.	Aneroid barometer above ground.	Actual, reduced to mean of 24 hours.	Sea level, reduced to mean of 24 hrs.	Departure from normal.	Mean max. + mean min. + 2.	Departure from normal.	Maximum.	Date.	Mean maximum.	Minimum.	Date.	Mean minimum.	Greatest daily range.	Mean wet thermometer.	Mean temperature of the dew-point, per cent.	Total movement, miles.	Precipitation with .01, or more.	Days with .01, or more.	Direction.	Miles per hour.	Date.									
New England.																																
Eastport.	76	67	85	29.61	29.70	- .28	33.1	+ .2	45	29	36	- 8	1	24	23	28	71	3.08	- .7	15	9,586	w.	43	e.	17	7	10	14	5.4	14.8		
Greenville.	1,070	6	...	28.55	29.75	.55	23.7	- .4	48	27	34	- 6	16	13	12	28	70	4.76	- .1	12	8,001	nw.	56	e.	25	13	9	9	5.0	6.2		
Portland, Me.	108	81	117	29.64	29.77	- .19	31.6	- .4	48	31	38	- 10	1	15	25	19	28	2.76	- .3	11	5,333	dw.	41	r.	25	16	9	6	4.0	8.7		
Concord.	288	70	79	29.45	29.77	- .28	31.8	+ .3	52	27	40	- 10	1	14	30	30	28	2.56	- .3	11	7,857	dw.	48	se.	24	8	10	11	6.1	14.1		
Burlington.	404	11	43	29.35	29.81	- .19	26.8	- .5	48	10	35	- 1	1	19	27	28	24	1.81	- .9	12	6,112	dw.	31	s.	24	8	10	13	6.1	20.0		
Northfield.	876	16	70	28.83	29.81	- .19	24.4	- 1.8	47	10	34	- 6	1	15	33	22	19	78	1.85	- .8	12	9,418	dw.	40	se.	25	8	10	13	5.7	3.1	
Boston.	125	115	188	29.64	29.78	- .19	36.8	+ 1.8	52	27	44	- 17	1	30	22	32	25	66	3.28	- .8	12	12,979	w.	55	ne.	4	14	7	10	5.1	T.	
Nantucket.	12	14	90	29.76	29.77	- .21	36.7	- .1	51	10	42	- 24	6	32	19	34	30	73	3.34	- .6	14	11,279	w.	62	ne.	4	16	3	12	4.8	T.	
Block Island.	26	11	46	29.76	29.79	- .19	36.5	+ 0.8	51	10	41	- 23	1	32	18	33	28	73	2.60	- 1.8	11	16,090	w.	44	sw.	25	13	6	12	5.1	6.7	
Narragansett.	9						35.9	+ 0.9	53	10	45	- 17	1	27	27	31	24	64	4.20	- 0.2	13	7,963	nw.	44	e.	25	13	6	12	5.1	6.7	
Providence.	160	141	165	29.62	29.88	- .17	35.4	- 0.8	57	10	43	- 18	1	28	25	31	24	64	2.86	- 1.2	13	10,192	uw.	48	se.	25	11	10	10	5.6	3.5	
Hartford.	159	122	140	29.64	29.82	- .18	35.0	0.0	55	25	42	- 17	1	28	26	30	24	68	3.64	- 0.7	12	6,794	dw.	46	e.	25	12	7	12	5.7	8.6	
New Haven.	106	118	185	29.70	29.82	- .17	36.5	+ 1.1	55	31	44	- 19	1	30	22	31	24	64	4.20	- 0.2	13	7,963	nw.	44	e.	25	13	6	12	5.1	6.7	
Mid. Atlantic States.							40.2	+ 0.1	55	31	44	- 19	1	28	26	30	24	69	2.95	- 0.7	12	7,857	dw.	48	e.	25	9	13	9	5.5	10.3	
Albany.	97	102	115	29.73	29.84	- .17	32.9	+ 0.8	51	28	40	- 14	1	26	20	29	24	72	2.11	- 0.6	11	6,834	nw.	36	w.	30	5	7	19	7.4	15.3	
Binghamton.	871	78	90	28.88	29.83	- .19	31.0	- 1.0	60	10	39	- 4	6	24	36	30	26	65	3.19	- 0.9	11	12,344	w.	40	w.	11	12	10	9	5.2	4.1	
New York.	314	108	180	29.48	29.83	- .17	38.8	+ 0.8	56	10	45	- 21	5	32	28	33	26	65	2.82	- 0.3	14	7,884	w.	36	n.	4	14	9	11	5.8	8.0	
Harrisburg.	374	94	104	29.47	29.83	- .15	38.0	+ 0.2	56	10	45	- 22	6	31	28	33	26	65	2.82	+ 0.7	13	6,169	dw.	30	w.	10	9	11	11	5.8	11.7	
Philadelphia.	117	116	184	29.75	29.88	- .14	41.4	+ 1.4	71	10	48	- 25	5	34	36	30	26	67	2.92	- 0.5	13	8,944	nw.	38	n.	4	14	9	11	5.2	4.7	
Soron.	806	111	119	28.98	29.86	- .16	84.0	- 0.9	61	10	42	- 3	6	26	31	30	25	72	2.68	- 0.4	16	6,943	nw.	38	sw.	10	9	9	14	6.6	13.0	
Atlantic City.	52	37	48	29.80	29.86	- .16	39.3	+ 0.5	57	10	46	- 23	5	32	36	30	26	70	3.58	- 0.2	14	7,378	nw.	48	ne.	4	11	9	11	5.6	6.3	
Cape May.	17	48	52	29.88	29.90	- .11	40.8	0.0	62	10	46	- 26	2	35	31	37	30	71	3.34	- 0.4	13	8,666	nw.	38	ne.	4	15	8	15	5.4	2.0	
Baltimore.	123	100	113	29.76	29.89	- .14	41.8	- 0.1	74	10	49	- 24	5	34	31	37	31	68	4.55	+ 0.7	13	6,169	dw.	30	w.	25	10	12	8	13	5.6	
Washington.	112	62	76	29.77	29.89	- .15	32.1	- 0.1	76	10	51	- 26	2	34	35	36	29	63	4.76	+ 0.9	14	7,198	dw.	25	10	8	10	12	8	10	4.6	10.8
Cape Henry.	8	9	58	29.88	29.90	- .13	47.1	+ 0.5	76	9	54	- 32	5	40	31	36	30	81	1.20	- 3.1	11	11,678	nw.	48	w.	3	13	9	9	4.5	T.	
Lynchburg.	681	83	88	29.16	29.92	- .18	45.0	- 0.4	74	10	55	- 24	2	35	36	39	34	70	2.37	- 1.4	12	4,453	nw.	30	w.	25	10	12	8	13	4.5	
Mount Weather.	1,725	10	54	29.00	29.87	- .18	36.5	- 0.3	68	10	45	- 19	22	28	32	32	26	70	1.88	- 2.1	12	15,074	nw.	78	w.	25	10	12	8	13	2.4	
Norfolk.	91	102	111	29.81	29.91	- .12	48.1	- 0.4	75	9	56	- 32	5	40	29	32	26	68	1.35	- 2.9	8	8,125	s.	42	w.	25	10	12	9	4.4	T.	
Richmond.	144	145	158	29.76	29.92	- .12	46.4	- 0.5	77	10	56	- 27	2	36	29	32	26	68	4.18	+ 0.4	12	7,669	nw.	46	sw.	25	14	8	9	4.7	3.8	
Wytheville.	2,298	40	47	27.61	29.99	- .12	40.9	- 1.4	70	9	50	- 20	16	32	32	36	33	81	3.81	- 0.6	17	5,775	w.	32	w.	8	13	10	8	4	1.2	
N. Atlantic States.							54.1	+ 0.3	75	10	55	- 25	16	35	33	39	35	75	5.05	- 0.0	15	7,656	nw.	37	nw.	4	12	5	14	5.5	0.3	
Asheville.	2,255	53	75	27.55	29.94	- .12	44.7	- 0.2	67	27	55	- 25	16	35	33	39	35	75	6.05	- 1.2	12	7,395	dw.	49	nw.	25	9	11	11	5.5	7.8	
Charlotte.	778	68	76	29.09	29.94	- .11	49.8	- 1.0	78	9	58	- 32	1	41	30	44	37	67	2.86	- 1.7	11	11,754	nw.	55	nw.	25	11	9	11	5.4	T.	
Hatteras.	11	12	47	29.90	29.91	- .13	52.2	+ 0.8	69	9	58	- 37	24	46	45	45	80	1.80	- 3.7	11	11,754	n.	19	sw.	25	9	11	5.5	7.8			
Manteo.							51.0	- .1	72	10	58	- 31	18	39	32	42	34	62	2.77	- 1.5	12	7,395	dw.	49	nw.	25	9	11	5.5	7.8		
Raleigh.	876	103	109	29.51	29.93	- .12	48.8	- 1.6	78	9	59	- 31	18	39	32	42	34	62	2.77	- 1.5	12	7,395	dw.	49	nw.	25	9	11	5.5	7.8		
Wilmingt.	78	81	91	29.86	29.94	- .11	53.9	+ 0.2	75	9	63	- 33	5	45	25	47	42	70	0.89	- 2.7	9	7,004	nw.	41	sw.	25	10	15	6.6	6.6		
Charleston.	48	14	92	29.89	29.94	- .12	58.1	+ 0.9	77	7	66	- 41	4	50	26	51	47	74	5.89	+ 2.2	13	8,446	nw.	39	sw.	25	8	11	5.5	6.8		
Columbia, S. C.	351	41	57	29.55	29.93	- .13	54.4	+ 0.4	83	9	64	- 32	16	44	30	46	39	64	3.47	- 0.2	12	6,198	nw.	40	sw.	25	8	11	5.5	6.8		
Augusta.	180	89	97	29.75	29.94	- .12	55.8	+ 0.1	84	9	66	- 33	16	46	39	48	52	68	5.61	+ 0.8	10	5,591	nw.	46	sw.	25	11	9	11	5.1	T.	
Savannah.</td																																

TABLE I.—Climatological data for U. S. Weather Bureau stations, March, 1909—Continued.

Stations.	Elevation of instruments.			Pressure, in inches.	Temperature of the air, in degrees Fahrenheit.								Precipitation, in inches.	Wind.			Maximum velocity.										
	Barometer above sea level, feet.	Thermometers above ground.	Anerometer above ground.		Actual, reduced to mean of 24 hours.	Sea level, reduced to mean of 24 hrs.	Departure from normal.	Mean max. + mean min. + 2.	Departure from normal.	Maximum.	Date.	Mean maximum.	Minimum.	Total.	Departure from normal.	Days with .01, or more.	Total movement miles.	Prevailing direction.	Miles per hour.	Clear days.							
																		Date.	Cloudy days.	Average cloudiness during day, tenths.	Total snowfall.						
<i>Upper Lake Region.</i>																											
Alpens.	609	13	92	29.22	29.91	— .12	28.8	+ 1.5	28.1	+ 3.1	31	36	6	18	20	27	25	22	81	1.78	— 0.3	14	5.5	8.0			
Escanaba.	612	40	82	29.26	29.05	— .09	26.8	+ 3.3	45	31	35	3	5	19	27	24	21	20	1.2	14	6,920	nw.	25	6	10		
Grand Haven.	632	54	92	29.21	29.92	— .11	31.6	+ 0.8	46	33	37	16	18	26	20	29	26	21	1.29	— 1.2	14	8,711	nw.	40	6	5.5	
Grand Rapids.	707	127	162	29.14	29.83	— .10	32.1	+ 0.9	40	31	32	16	17	26	23	29	25	27	1.37	— 1.2	11	8,485	nw.	38	5	6.6	
Houghton.	668	66	74	29.19	29.84	— .10	25.6	+ 0.9	42	26	32	16	8	5	16	21	25	24	1.23	— 0.9	17	4,832	e.	32	10	6.10	
Marquette.	734	77	116	29.13	29.96	— .08	24.6	+ 1.5	42	31	32	16	7	5	20	25	24	20	2.04	— 0.5	15	9,912	nw.	38	5	2.22	
Port Huron.	688	70	120	29.19	29.90	— .13	30.6	+ 1.0	47	31	37	5	5	25	22	24	24	18	1.54	— 0.9	12	9,113	nw.	37	4	7.9	
Sault Sainte Marie.	614	40	61	29.22	29.94	— .09	27.8	+ 1.5	41	33	32	8	8	5	14	35	21	17	81	1.53	— 0.3	9	6,209	nw.	33	3	15.5
Chicago.	828	140	310	29.03	29.94	— .09	36.0	+ 1.6	55	26	41	14	17	30	23	32	28	14	1.63	— 0.9	8	10,828	w.	38	3	6.7	
Milwaukee.	681	122	138	29.20	29.96	— .07	33.0	+ 2.1	50	1	28	8	17	28	19	30	27	20	0.86	— 1.8	10	8,018	w.	37	3	10	
Green Bay.	617	49	86	29.94	29.92	— .12	29.4	+ 2.6	47	31	36	5	17	23	27	26	22	19	7.63	— 0.8	11	7,487	n.	46	ne.	6.12	
Duluth.	1,188	11	47	28.71	29.98	— .08	24.8	+ 0.7	43	31	32	5	17	18	27	22	19	82	0.78	— 0.8	9	9,179	n.	49	n.	6.7	
<i>North Dakota.</i>																											
Moorehead.	940	8	57	29.00	30.05	— .03	26.0	+ 4.6	46	25	33	— 1	1	17	19	32	24	23	22	1.45	— 0.7	9	7,080	nw.	80	2	3.4
Bismarck.	1,674	8	57	28.23	30.08	+ .02	27.7	+ 5.6	68	25	36	6	14	19	24	22	21	21	83	0.27	— 0.8	8	9,988	nw.	42	2	9
Devils Lake.	1,482	11	44	28.39	30.03	— .02	18.4	+ 0.1	49	25	27	10	17	10	40	17	16	11	91	0.39	— 0.6	10	9,303	n.	44	n.	5.5
Williston.	1,672	14	56	27.98	30.03	— .01	27.0	+ 5.4	55	15	35	2	14	19	35	23	19	76	0.12	— 0.6	3	7,498	n.w.	44	w.	2	
<i>Upper Miss. Valley.</i>																											
Minneapolis.	102	208	—	29.2	29.98	— .07	29.2	+ 0.8	50	23	36	2	17	23	23	23	22	21	74	1.90	— 0.5	9	8,422	w.	45	8	3.7
St. Paul.	887	171	79	29.04	29.98	— .07	29.0	+ 0.8	49	23	35	2	17	23	23	23	22	21	72	0.49	— 1.2	5	8,708	nw.	38	6	4.4
La Crosse.	714	11	45	29.17	29.96	— .08	30.0	+ 0.9	51	23	36	— 1	17	22	23	24	23	22	1.36	— 0.5	6	2,371	nw.	24	6	15	
Madison.	974	70	78	28.88	29.96	— .08	30.4	+ 0.3	49	23	36	5	17	25	27	27	26	25	77	1.12	— 1.1	12	7,917	nw.	34	n.	3
Charles City.	1,015	10	48	28.89	30.00	— .05	28.0	+ 0.4	49	23	36	12	17	20	26	24	23	22	76	0.25	— 0.6	5	5,566	n.	26	n.	3.3
Davenport.	606	71	79	29.29	29.97	— .06	35.8	+ 0.4	57	23	41	9	17	28	27	31	27	26	76	1.60	— 0.6	11	6,692	nw.	29	ne.	2.9
Des Moines.	861	84	101	29.06	29.99	— .05	33.6	+ 2.1	65	23	42	0	17	26	30	26	25	25	75	1.56	— 0.1	8	6,516	n.	31	n.	3.3
Dubuque.	698	100	117	29.22	29.99	— .05	32.8	+ 0.4	54	23	39	6	17	26	29	29	25	25	75	1.25	— 1.0	7	5,307	nw.	27	n.	6.1
Keokuk.	614	64	73	29.29	29.98	— .05	33.9	+ 1.0	62	23	47	11	17	30	33	33	28	71	1.84	— 0.5	8	6,833	n.	32	n.	1.5	
Calio.	856	87	93	29.53	29.97	— .07	46.7	+ 0.6	36	23	55	23	15	40	42	46	36	66	7.10	— 3.1	10	8,092	n.	40	sw.	13	
Le Salle.	536	56	64	29.37	29.96	— .07	36.2	+ 0.6	59	26	44	12	17	38	30	30	28	30	1.40	— 1.4	6	7,485	w.	30	sw.	9	
Pearl.	609	11	45	29.29	29.97	— .06	36.8	+ 0.2	61	21	46	11	17	38	31	32	28	75	1.81	— 1.2	9	7,516	n.	35	sw.	9	
Springfield, Ill.	644	10	91	29.25	29.95	— .08	40.2	+ 1.1	65	1	45	15	17	31	35	30	28	70	1.10	— 2.0	2	8,674	n.	33	sw.	9	
Hannibal.	534	75	109	29.38	29.96	— .06	40.0	+ 1.6	61	23	49	17	31	31	33	32	32	65	1.65	— 1.5	5	6,692	n.	40	sw.	6.5	
St. Louis.	667	208	217	29.93	29.95	— .08	43.7	+ 0.2	70	1	42	19	17	35	33	32	32	68	3.69	— 0.3	9	8,883	n.	45	5	0.1	
<i>Missouri Valley.</i>																											
Columbia, Mo.	784	11	84	29.12	29.96	— .07	42.0	+ 0.6	52	12	33	17	15	31	37	37	36	60	1.50	— 1.3	5	9,877	nw.	42	n.	9	
Kansas City.	968	116	181	28.91	29.97	— .05	42.4	+ 1.6	77	23	51	21	17	34	35	36	30	60	1.53	— 1.5	5	8,667	n.	36	n.	4.3	
Springfield, Mo.	1,324	98	104	28.52	29.95	— .07	44.7	+ 1.2	73	23	54	15	35	35	39	39	34	72	1.53	— 2.5	6	8,644	ne.	34	sw.	23	
Iola.	984	11	50	28.91	29.98	— .03	44.0	+ 1.6	75	23	55	23	20	44	33	36	32	73	2.01	— 0.3	7	7,507	n.	46	sw.	18	
Topeka.	85	101	84	28.72	30.02	— .00	36.5	+ 0.5	71	23	47	16	14	26	31	31	26	73	0.95	— 0.4	9	8,299	n.	44	n.	2.9	
Lincoln.	1,189	11	84	28.72	30.02	— .00	36.5	+ 0.5	71	23	47	16	14	26	31	31	26	72	0.63	— 0.3	10	8,730	n.	37	n.	7.10	
Omaha.	1,105	115	121	28.80	30.02	— .02	35.8	+ 0.2	65	23	44	16	17	24	27	28	24	75	0.74	— 0.5	6	7,777	n.	48	n.	15	
Valentine.	2,698	47	50	27.50	30.05	+ .02	30.6	+ 1.3	65	23	44	16	17	24	24	24	23	72	1.14	— 0.1	3	7,727	n.	47	n.	4.3	
Sioux City.	1,135	96	164	28.79	30.04	— .01	31.8	+ 0.8	65	23	39	11	17	34	37	37	34	73	0.74	— 0.5	6	7,700	n.	48	n.	8.0	
Pierre.	1,572	70	75	28.34	30.05	.00	33.8	+ 4.3	63	23	45	14	24	34	28	20	21	61	0.02	— 1.3	1	7,877	n.	43	n.	5.2	
Huron.	1,306	56	67	28.63	30.07	+ .01	29.8	+ 3.1	61	23	37	9	17	32	30	26	23	80	0.21	— 0.8	8	8,973	n.	42	n.	10	
Yankton.	1,238	49	57	28.67	30.03	— .02	30.9	+ 0.3	61	23	39	10	9	13	31	31	29	72	0.75	— 0.4	4	6,633	w.	33	w.	8	
<i>Northern Slope.</i>																											
Havre.	2,505	11	44	27.31	30.01	+ .01	31.4	+ 4.1	63	31	42	— 8	11	20	42	42	37	33	63	1.67	— 0.2	4	5,775	e.	35	ne.	2.5
Miles City.	2,371	26	48	27.46	30.08	+ .06	34.0	+ 5.4	64	31	46	— 6	12	26	32	32	2										

TABLE I.—*Climatological data for U. S. Weather Bureau stations, March, 1909—Continued.*

† Below sea level.

TABLE II.—Accumulated amounts of precipitation for each 5 minutes, for storms in which the rate of fall equaled or exceeded 0.25 in any 5 minutes, or 0.80 inch in 1 hour, during March, 1909, at all stations furnished with self-registering gages.

TABLE II.—Accumulated amounts of precipitation for each 5 minutes, etc.—Continued.

Stations.	Date.	Total duration.		Total amount of precipita- tion.	Excessive rate.		Amount before excessive begin-	Depths of precipitation (in inches) during periods of time indicated.													
		From—	To—		Began—	Ended—		5 min.	10 min.	15 min.	20 min.	25 min.	30 min.	35 min.	40 min.	45 min.	50 min.	60 min.	80 min.	100 min.	120 min.
Flagstaff, Ariz.	23			0.50															*		
Fort Smith, Ark.	8			0.86															0.28		
Fort Worth, Tex.	8			0.24															0.20		
Fresno, Cal.	29			0.35															0.27		
Galveston, Tex.	12	6:20 a. m.	8:50 a. m.	0.95	6:39 a. m.	7:22 a. m.	0.07	0.10	0.12	0.17	0.25	0.30	0.39	0.46	0.68	0.74					
Grand Haven, Mich.	26			0.41															*		
Grand Junction, Colo.	29-30			0.02																	
Grand Rapids, Mich.	26			0.351															0.13		
Green Bay, Wis.	9			0.79															*		
Greenville, Me.	17			1.40															*		
Hannibal, Mo.	7			0.18															0.16		
Harrisburg, Pa.	3			0.68															0.13		
Hartford, Conn.	25			1.62															0.27		
Hartras, N. C.	2			0.56															0.28		
Havre, Mont.	9-10			0.18															*		
Helena, Mont.	12			0.21															*		
Houghton, Mich.	23			0.25															*		
Huron, S. Dak.	15			0.10															*		
Independence, Cal.	25			0.12															0.06		
Indianapolis, Ind.	8-9			1.75															*		
Iola, Kans.	8	7:03 a. m.	7:40 a. m.	0.51	7:11 a. m.	7:26 a. m.	0.01	0.15	0.39	0.50									0.77	1.47	1.81
Jacksonville, Fla.	24-25	10:55 p. m.	D. N.	2.29	1:28 a. m.	3:06 a. m.	0.39	0.06	0.17	0.23	0.28	0.35	0.42	0.49	0.56	0.60	0.65	0.77			
Jupiter, Fla.	2	11:50 a. m.	1:31 p. m.	1.09	12:30 p. m.	1:31 p. m.	0.10	0.07	0.16	0.37	0.42	0.47	0.48	0.55	0.59	0.68	0.80	0.94	0.99		
Do	15	2:50 p. m.	5:40 p. m.	0.30	3:09 p. m.	3:24 p. m.	0.03	0.21	0.44	0.50									*		
Kalispell, Mont.	8-9			0.76															0.22		
Kansas City, Mo.	8			0.80														*			
Keokuk, Iowa	7-8			0.09															0.09		
Key West, Fla.	2			1.24															0.54		
Knoxville, Tenn.	9			1.01															*		
La Crosse, Wis.	9			0.79															0.09		
Lander, Wyo.	9			0.70															0.21		
La Salle, Ill.	9			0.33															0.47		
Lewiston, Idaho	4			0.24															*		
Lexington, Ky.	9			0.24															0.60		
Lincoln, Nebr.	31			1.79															0.26		
Little Rock, Ark.	8			1.11															0.71		
Los Angeles, Cal.	21			2.68															0.28		
Louisville, Ky.	9			0.25															*		
Lynchburg, Va.	3			0.60															*		
Macon, Ga.	9-10	7:40 p. m.	D. N.	0.96	10:03 p. m.	10:12 p. m.	0.16	0.37	0.15	0.36	0.40										
Madison, Wis.	8-9	6:30 p. m.	6:30 a. m.	1.00	6:12 p. m.	7:00 p. m.	0.01	0.14	0.23	0.36	0.40								*		
Marquette, Mich.	9-10	7:30 p. m.	8:40 a. m.	0.90	2:29 a. m.	2:40 a. m.	0.10	0.21	0.35	0.38									*		
Memphis, Tenn.	8-9	7:20 a. m.	10:15 a. m.	0.68	7:33 a. m.	7:43 a. m.	0.02	0.15	0.33												
Meridian, Miss.	9	8:45 p. m.	8:30 p. m.	0.61	6:09 p. m.	6:24 p. m.	0.18	0.13	0.26	0.39											
Do	13			0.12															0.07		
Milwaukee, Wis.	26			0.16															*		
Minneapolis, Minn.	9	3:50 p. m.	6:33 p. m.	0.76	4:10 p. m.	4:29 p. m.	0.04	0.10	0.28	0.38	0.45										
Mobile, Ala.	9	D. N.	D. N.	0.69	11:41 p. m.	11:58 p. m.	0.07	0.10	0.24	0.45	0.54										
Modena, Utah.	22			0.40															*		
Montgomery, Ala.	9			5.53																	
Do	11-12	2:34 p. m.	10:22 a. m.	5.42	2:05 p. m.	2:55 p. m.	0.05	0.06	0.15	0.40	0.62	0.87	1.01	1.02	1.04	1.15	1.27				
Moorhead, Minn.	28-29			0.14	3:45 p. m.	4:35 p. m.	1.38	1.62	1.64	1.67	1.79	1.84	1.91	1.96	2.00	2.08					
Mount Tamalpais, Cal.	6			1.94	4:35 p. m.	5:25 p. m.	2.17	2.26	2.31	2.35	2.41	2.45	2.54	2.83	2.98	3.08					
Mount Weather, Va.	3			0.66	5:25 p. m.	6:04 p. m.	3.36	3.63	3.74	3.82	3.98	4.16	4.35	4.54	4.60	4.65					
Nantucket, Mass.	25			1.19	6:04 p. m.	9:37 p. m.	4.66	4.67	4.78	4.88	4.96	5.01	5.06	5.09							
Nashville, Tenn.	19			1.39																	
New Haven, Conn.	25			2.09																	
New Orleans, La.	13-14	8:20 p. m.	9:05 a. m.	2.08	3:18 a. m.	3:47 a. m.	0.78	0.05	0.17	0.40	0.56	0.61	0.69								
New York, N. Y.	24	12:25 p. m.	7:15 p. m.	1.63	1:00 p. m.	T.	0.25	0.49	0.55										0.40		
Norfolk, Va.	25			0.24															0.21		
Northfield, Vt.	25-26			0.89																	
North Head, Wash.	31			0.58																	
North Platte, Nebr.	23-24			0.67																	
Oklahoma, Okla.	8	D. N.	6:25 a. m.	0.87	5:38 a. m.	6:03 a. m.	0.19	0.08	0.22	0.48	0.55	0.66									
Omaha, Nebr.	9			0.22																	
Oswego, N. Y.	24-25			1.46																	
Palestine, Tex.	13			1.12																	
Parkersburg, W. Va.	3			0.26																	
Pensacola, Fla.	9	5:35 p. m.	9:30 p. m.	1.08	6:29 p. m.	6:50 p. m.	0.10	0.26	0.32	0.45	0.59	0.62									
Pearl, Ill.	21			0.67																	
Philadelphia, Pa.	25			0.78																	
Phoenix, Ariz.	23			0.36																	
Pierre, S. Dak.	26			0.02																	
Pittsburgh, Pa.	9			0.62																	
Pocatello, Idaho.	8			0.28																	
Point Reyes Light, Cal.	5-6			0.63																	
Port Huron, Mich.	24			1.02																	
Portland, Me.	25			1.02																	
Portland, Oreg.	31			0.25																	
Providence, R. I.	25			1.56																	
Pueblo, Colo.	28-29			0.27																	
Raleigh, N. C.	3	11:41 a. m.	1:25 p. m.	0.73	12:22 p. m.	1:02 p. m.	0.03	0.10	0.22	0.30	0.36	0.43	0.51	0.57	0.63						
Do	24-25	9:40 p. m.	6:10 a. m.	0.60	5:02 a. m.	5:11 a. m.	0.16	0.22	0.34												
Rapid City, S. Dak.	10-11			1.85	4:24 p. m.</																

TABLE II.—Accumulated amounts of precipitation for each 5 minutes, etc.—Continued.

Stations.	Date.	Total duration.		Total amount of precipita- tion.	Excessive rate.	Amount before excessive rate began.	Depths of precipitation (in inches) during periods of time indicated.												
		From—	To—				Began—	Ended—	5 min.	10 min.	15 min.	20 min.	25 min.	30 min.	35 min.	40 min.	45 min.	50 min.	60 min.
Sand Key, Fla.	22			0.15															0.14
Sandusky, Ohio	9			0.87															*
San Francisco, Cal.	20			1.02															0.38
San Jose, Cal.	6			0.59															0.21
San Luis Obispo, Cal.	21			1.14															0.42
Santa Fe, N. Mex.	18-19			0.30															*
Sault Sainte Marie, Mich	9-10			0.44															0.40
Savannah, Ga.	2			0.54															0.20
Scranton, Pa.	25			1.14†															0.08
Seattle, Wash.	3			0.26															*
Sheridan, Wyo.	12			0.12															0.50
Shreveport, La.	13			1.62															0.24
Sioux City, Iowa	7-8			0.39															0.31
Southeast Farallon, Cal.	5-6			0.02															0.02
Spokane, Wash.	30			0.36															0.09
Springfield, Ill.	24			0.95															*
Springfield, Mo.	8			1.30															*
Syracuse, N. Y.	25-26			0.54															*
Tacoma, Wash.	8			0.38	7:50 a. m.	8:00 a. m.	0.02	0.21	0.35										
Tampa, Fla.	2	7:15 a. m.	8:15 a. m.	0.40															0.21
Tatoosh Island, Wash.	17			0.57	2:55 p. m.	3:05 p. m.	0.01	0.29	0.41										*
Taylor, Tex.	19	2:44 p. m.	4:23 p. m.	0.83															0.56
Thomasville, Ga.	24			0.66															0.27
Toledo, Ohio	9			0.16															*
Tonopah, Nev.	21			0.91															0.35
Topeka, Kans.	23-24			1.02															*
Valentine, Nebr.	7			1.62	5:43 p. m.	6:03 p. m.	0.27	0.18	0.80	1.20	1.38								0.20
Vicksburg, Miss.	19	4:00 p. m.	6:40 p. m.	0.45															0.40
Walla Walla, Wash.	4			1.75															*
Washington, D. C.	3			0.98															*
Wichita, Kans.	9			0.11															*
Williston, N. Dak.	14-15			0.28															*
Wilmington, N. C.	10			0.33															0.22
Winnemucca, Nev.	21			0.44†															0.31
Wytheville, Va.	3			0.67															*
Yankton, S. Dak.	7			0.29															*
Yellowstone Park, Wyo.	1																		*

\* Self register not working.

† Partly estimated.

‡ Estimated.

TABLE III.—Data furnished by the Canadian Meteorological Service, March, 1909.

Stations.	Pressure.		Temperature.			Precipitation.			Stations.	Pressure.		Temperature.			Precipitation.						
	Actual, reduced to mean of 24 hours.	Sea level, reduced to mean of 24 hours.	Departure from normal.	Mean.	Departure from normal.	Mean maximum.	Mean minimum.	Total.		Actual, reduced to mean of 24 hours.	Sea level, reduced to mean of 24 hours.	Departure from normal.	Mean.	Departure from normal.	Mean maximum.	Mean minimum.	Total.				
								Total snowfall.									Total snowfall.				
St. Johns, N. F.....	Ins.	Ins.	Ins.	o	+ 3.2	35.5	26.3	5.84	+ 1.08	17.0	Parry Sound, Ont.....	Ins.	Ins.	o	o	o	Ins.	Ins.	Ins.		
Sydney, G. B. I.....	29.44	29.58	- .30	30.9	+ 4.0	36.3	24.2	5.12	+ 0.19	19.5	Port Arthur, Ont.....	29.24	29.97	- .08	23.4	+ 6.6	33.3	15.2	2.68	+ 0.45	22.0
Halifax, N. S.....	29.65	29.69	- .19	30.2	+ 2.6	38.4	24.9	5.05	- .41	14.9	Winnipeg, Man.....	29.20	30.07	- .02	17.1	+ 4.8	27.2	7.0	.66	- .31	6.6
Grand Manan, N. B.....	29.64	29.69	- .24	32.6	+ 2.8	39.0	26.3	4.41	+ 0.13	7.1	Minnedosa, Man.....	28.16	30.06	o	16.9	+ 4.4	26.3	7.4	.71	+ 0.06	7.1
Yarmouth, N. S.....	29.64	29.71	- .24	33.0	+ 2.2	38.4	27.5	5.27	+ 0.42	10.7	Qu'Appelle, Assin.....	27.66	29.99	- .05	18.8	+ 3.9	27.3	10.4	.52	- .25	5.2
Charlottetown, P. E. I.....	29.63	29.67	- .23	28.8	+ 3.4	34.5	25.2	4.03	+ 0.88	20.5	Medicine Hat, Alberta.....	27.66	29.98	- .02	32.4	+ 4.9	43.0	21.8	.20	- .56	2.0
Chatham, N. B.....	29.68	29.70	- .20	26.6	+ 3.6	33.8	19.4	4.47	+ 1.00	19.9	Swift Current, Sask.....	27.38	30.05	+ .03	23.3	+ 1.3	30.4	16.1	.98	- .45	3.6
Father Point, Que.....	29.75	29.78	- .12	21.5	+ 1.2	28.5	14.6	2.90	+ 0.17	25.6	Calgary, Alberta.....	26.33	29.94	- .01	30.7	+ 4.5	41.3	19.6	.68	- .04	6.8
Quebec, Que.....	29.45	29.78	- .18	22.8	+ 1.6	30.1	15.5	3.29	+ 0.03	31.8	Banff, Alberta.....	25.26	29.96	+ .02	27.6	+ 7.4	38.8	16.3	.78	- .63	7.8
Montreal, Que.....	29.57	29.79	- .21	25.8	+ 2.0	31.4	20.2	3.97	+ 0.16	22.9	Edmonton, Alberta.....	27.61	29.97	+ .01	24.6	+ 0.4	35.3	13.8	.11	- .61	1.1
Rockcliffe, Ont.....	29.22	29.83	- .18	20.4	+ 1.4	31.8	9.0	0.95	- 1.11	9.1	Prince Albert, Sask.....	28.42	30.04	- .04	17.9	+ 5.9	28.1	7.7	.55	- .22	5.5
Ottawa, Ont.....	29.53	29.85	- .16	27.2	+ 1.6	34.0	20.3	3.34	+ 0.70	14.5	Battleford, Sask.....	28.25	30.07	+ .01	16.9	+ 3.8	26.1	7.8	.02	- .44	0.2
Kingston, Ont.....	29.53	29.85	- .13	29.9	+ 2.6	36.8	23.4	2.77	+ 0.13	15.3	Kamloops, B. C.....	28.60	29.89	- .03	43.4	+ 7.3	54.2	32.5	.06	- .51	0.0
Toronto, Ont.....	29.49	29.89	- .13	15.4	+ 3.2	30.3	0.5	1.00	- 0.38	10.0	Victoria, B. C.....	29.90	30.00	+ .03	43.6	+ 1.7	50.1	36.9	.73	- .29	0.0
White River, Ont.....	29.54	29.89	- .14	25.0	+ 2.0	31.4	20.2	3.97	+ 0.16	22.9	Barkererville, B. C.....	25.49	29.84	- .04	28.0	+ 1.9	37.5	18.6	.40	- .49	0.0
Port Stanley, Ont.....	29.24	29.90	- .13	30.4	+ 3.2	36.7	24.1	2.66	- 0.22	9.7	Hamilton, Bermuda.....	29.82	29.99	- .09	61.9	- 0.3	65.8	57.0	4.94	- 0.19	0.0
Southampton, Ont.....	29.15	29.88	- .15	28.6	+ 3.9	34.9	22.3	1.87	- 0.78	15.9	Dawson, Yukon.....	28.61	30.00	- .04	12.0	- .1	21.0	3.1	1.21	.....	12.1

TABLE IV.—Heights of rivers referred to zeros of gages, March, 1909.

Stations.	Distance to mouth of river.	Flood stage on gage.	Highest water.		Lowest water.		Monthly range.	Stations.	Distance to mouth of river.	Flood stage on gage.	Highest water.		Lowest water.		Monthly range.	
			Height.	Date.	Height.	Date.					Mean stage.	Height.	Date.	Height.	Date.	
			Miles.	Feet.	Feet.	Feet.					Feet.	Feet.	Feet.	Feet.	Feet.	
Republican River.	Clay Center, Kans.	14	8.9	10.11	5.2	1	7.5	1	Rogersville, Tenn.	14	8.6	29	3.4	4.7	5.2	
Smoky Hill-Kansas River.	254	22	1.2	5	0.6	15.24	30	0.8	French Broad River.	144	4	26	0.8	1.5	2.0	
Abilene, Kans.	160	18	4.8	25	3.1	19	3.8	1.7	Asheville, N. C.	46	12	29	2.9	4.5	7.1	
Manhattan, Kans.	87	21	8.9	26	6.2	19-22	6.8	2.7	Dandridge, Tenn.	25	11.2	12	3.2	6.5	8.0	
Topka, Kans.									Knoxville, Tenn.	566	25	12	5.4	6.5	8.7	
Missouri River.	Blanchard, N. Dak.	1,309	14	8.9	10.11	5.2	7.5	3.7	Loudon, Tenn.	590	25	11.2	11	3.2	5.0	
Pierre, S. Dak. (°)	1,114	14	6.8	7	2.7	29	3.6	3.6	Kingston, Tenn.	556	25	12.9	12	5.4	7.5	
Sioux City, Iowa.	784	17	14.0	7	7.4	17.18	9.1	6.6	Chattanooga, Tenn.	452	38	24.6	15	7.7	16.9	
Blair, Nebr.	705	15	12.7	8	6.9	3-5	9.4	5.8	Bridgeport, Ala.	402	24	19.4	15	6.6	12.8	
Omaha, Nebr.	639	18	15.8	8	9.7	5	12.1	6.1	Guntersville, Ala.	849	31	30.4	14	11.5	18.9	
Plattsmouth, Nebr.	641	17	9.0	9	5.1	4.5	6.4	3.9	Florence, Ala.	255	16	19.6	15	8.0	11.6	
St. Joseph, Mo.	481	10	10.1	10	2.8	1	6.4	7.3	Riverton, Ala.	225	32	33.3	17	19.8	27.8	
Kansas City, Mo.	388	21	17.6	10	8.8	1.2	13.1	8.8	Johnsonville, Tenn.	95	25	32.9	1	14.8	23.8	
Glasgow, Mo.	231	21	17.6	11	8.9	3	13.6	8.7	Ohio River.	966	22	12.5	5	3.1	9.4	
Boonville, Mo.	199	20	17.8	12	10.8	1	13.7	7.5	Pittsburgh, Pa.	966	25	18.0	4	5.0	8.0	
Hermann, Mo.	103	24	16.6	12	9.0	5.6	12.1	7.6	Coraopolis, Pa.	956	25	19.4	5	7.8	18.6	
Minnesota River.	Mankato, Minn.	127	18	17.2	29.30	8.0	1,2	7.9	Beaver Dam, Pa.	987	27	19.4	5	7.2	11.6	
St. Croix River.	Stillwater, Minn. (°).	23	11						Parkersburg, W. Va.	875	36	19.9	5	7.2	12.7	
Illinois River.	LaSalle, Ill.	197	18	20.8	1	16.9	26.31	18.5	Huntington, W. Va.	703	39	38.8	1	10.1	28.7	
Peoria, Ill.	135	14	16.0	3	13.5	29-31	14.8	2.5	Catlettsburg, Ky.	660	50	44.5	1	13.9	30.6	
Conemaugh River.	Johnstown, Pa.	64	7	5.7	4	2.4	22-26	3.2	Portsmouth, Ohio.	612	50	49.8	1	14.0	35.8	
Allegheny River.	Warren, Pa.	177	14	6.4	11	1.4	20	3.4	Maysville, Ky.	559	50	49.9	1	15.0	34.9	
Warren, Pa.	73	20	8.0	12	2.4	24	4.7	5.6	Cincinnati, Ohio.	499	50	54.1	1	17.2	36.9	
Parker, Pa.	29	20	12.5	4,12	5.2	25	8.9	7.3	Madison, Ind.	413	46	47.0	1	15.4	31.6	
Frederick, Pa.	29	27	17.4	4,12	10.5	25	13.9	6.9	Louisville, Ky.	367	28	31.7	1	7.6	24.1	
Springdale, Pa.									Evanston, Ind.	184	35	43.2	2	15.1	29.30	
Toughoghotha River.	Confidence, Pa.	59	10	4.3	4	1.2	25	2.3	Mount Vernon, Ind.	148	35	43.2	3-5	14.4	28.8	
West Newton, Pa.	15	23	7.2	4	1.5	25	3.1	5.7	Paducah, Ky.	47	40	44.5	5,6	22.1	31	
Licking River.	Fairmont, W. Va.	119	25	19.3	4	14.8	25	16.1	Cairo, Ill.	1	45	47.3	17	31.4	47.7	
Monongahela River.	Greensboro, Pa.	81	18	12.8	4	7.5	25	9.8	5.3	Neosho River.	262	10	6.1	21	- 0.7	6.8
Lock No. 4, Pa.	40	28	16.4	5	8.8	19	11.4	7.6	Owasco, Kans.	184	20	15.4	22	0.9	14.5	
Muskingum River.	Zanesville, Ohio.	70	25	19.0	1	9.8	24	13.2	9.2	Fort Gibson, Okla.	8	22	16.5	23	8-13	12.1
Little Kanawha River.	Creston, W. Va.	38	20	7.8	4	2.6	23-25	4.0	5.2	Canadian River.	99	15	3.1	13,25	2.6	- 2
New Great Kanawha River.	Hinton, W. Va.	153	14	5.8	28	3.0	21,22	4.2	2.8	Calvin, Okla.	67	12	24.7	11	13.1	11.6
Charleston, W. Va.	58	30	12.0	11	4.6	21	8.0	7.4	Black Rock, Ark.	272	18	19.4	10	3.1	16.8	
Scioto River.	Columbus, Ohio.	110	17	7.6	10	1.8	21-24	3.9	5.8	Calicorock, Ark.	217	18	22.1	10	5.0	17.1
Licking River.	Falmouth, Ky.	30	25	26.0	9	2.2	29	6.2	23.8	Batesville, Ark.	185	26	26.0	14	13.8	12.2
Kentucky River.	Beattyville, Ky.	254	80	21.9	10	1.4	24	5.0	20.5	Clarendon, Ark.	75	30	28.9	21,22	26.0	1
Frankfort, Ky.	65	31	25.0	10	7.1	23,24	10.3	17.9	Arkansas River.	882	10	0.8	1-3	- 1.4	0.6	
Wabash River.	Terre Haute, Ind.	171	16	17.8	1	3.9	24-27	7.7	13.9	Wichita, Kans.	551	16	6.8	21	2.4	4.4
Mount Carmel, Ill.	75	15	19.7	4	5.7	28	13.6	14.0	Webbers Falls, Okla.	465	23	18.4	24	5.3	8.1	
Oberland River.	Burnside, Ky.	518	50	33.3	11	4.7	5	13.4	28.6	Fort Smith, Ark.	403	22	12.7	24	5.8</td	

TABLE IV.—Heights of rivers referred to zeros of gages—Continued.

Stations.	Distance from mouth of river.	Flood stage on gage.	Highest water.		Lowest water.		Mean stage. Monthly range.	Stations.	Distance from mouth of river.	Flood stage on gage.	Highest water.		Lowest water.		Mean stage. Monthly range.		
			Height.	Date.	Height.	Date.					Height.	Date.	Height.	Date.			
<i>Mississippi River.—Cont'd.</i>																	
Red Wing, Minn. (21).	1,914	14	4.4	81	— 0.5	6	1.3	4.9	Catawba-Wateree River—Con-	Miles.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	
Reds Landing, Minn.	1,884	12							Catawba, S. C.	107	11	7.4	27	3.0	20	4.3	
La Crosse, Wis. (21).	1,819	12							Camden, S. C.	37	24	17.8	11	8.8	8	11.9	
Prairie du Chien, Wis. (31)	1,769	18							<i>Concourse River.</i>							9.0	
Dubuque, Iowa (21).	1,699	18							Columbia, S. C.	52	15	9.4	11	2.5	7	4.2	
Clinton, Iowa	1,629	16	6.2	31	3.0	17-19	4.5	3.2	Santee River.							6.9	
LeClaire, Iowa	1,609	10	3.6	31	1.2	17-18	2.4	2.4	Ferguson, S. C.	82	12	13.6	17-20	12.5	9-12, 23-30		
Davenport, Iowa	1,593	15	6.1	1	3.4	18	4.9	2.7	Savannah River.							1.1	
Muscatine, Iowa	1,562	16	8.5	1	4.5	19, 20	6.2	4.0	Calhoun Falls, S. C.	347	15	7.3	14	2.9	31	4.0	
Galland, Iowa	1,472	8	4.2	13	2.4	20	3.4	1.8	Augusta, Ga.	268	32	28.0	15	10.8	7	16.2	
Keokuk, Iowa	1,468	15	7.5	31	4.3	21, 22	6.2	3.2	Oconee River.	79	80	23.3	16	4.3	8	12.1	
Wauwatosa, Ill.	1,458	18	10.9	31	7.2	21	9.2	3.7	Dublin, Ga.							19.0	
Hannibal, Mo.	1,402	13	9.0	12, 13	5.5	22, 23	7.6	3.5	Omowigee River.								
Grafton, Ill.	1,306	28	12.7	18, 14	8.7	23, 24	10.6	4.0	Macon, Ga.	134	18	20.6	13	5.3	6	10.9	
St. Louis, Mo.	1,264	30	22.6	13	13.3	7	16.4	9.3	Abbeville, Ga.	51	11	16.7	19	7.5	10	11.9	
Chester, Ill.	1,189	30	20.0	14	11.7	8	14.6	8.3	<i>Flint River.</i>							9.2	
Cape Girardeau, Mo.	1,138	28	25.8	14	17.4	27	20.4	8.4	Montezuma, Ga.	152	20	18.7	16	6.1	7	11.6	
New Madrid, Mo.	1,008	84	38.6	18	26.1	31	36.0	12.2	Albany, Ga.	99	20	22.4	20	3.7	9	13.3	
Memphis, Tenn.	843	38	38.6	22	30.5	31	36.5	8.1	Bainbridge, Ga.	22	22	22.1	26	8.1	8, 9	14.8	
Helena, Ark.	767	42	47.7	25	38.0	1	44.9	9.7	<i>Chattochoochee River.</i>							14.0	
Arkansas City, Ark.	685	42	50.1	28-30	38.9	1	46.8	11.2	Oakdale, Ga.	305	21	24.7	15	8.1	6	12.2	
Greenville, Miss.	595	42	44.8	29, 30	32.9	1	40.4	11.9	West Point, Ga.	174	20	19.2	13	4.3	6	8.8	
Vicksburg, Miss.	474	45	47.9	30, 31	36.2	1	43.6	11.7	Eufaula, Ala.	90	40	41.8	15	6.0	6, 7	18.2	
Natchez, Miss.	378	46	47.7	30, 31	35.3	1	42.5	12.4	Alaga, Ala.	30	25	35.3	16	8.3	7	19.4	
Baton Rouge, La.	240	35	35.6	31	25.3	1	30.9	10.3	<i>Coosa River.</i>							27.0	
Donaldsonville, La.	188	28	28.8	31	19.8	1	24.2	9.0	Rome, Ga.	266	80	31.5	14	4.7	6	13.9	
New Orleans, La.	108	18	17.6	31	11.7	1	15.2	5.9	Gadsden, Ala.	162	22	27.4	17	7.2	6	17.1	
<i>Achafalaya River.</i>									Lock No. 4, Ala.	113	17	22.7	14	6.4	6, 7	14.0	
Simmesport, La.	127	41	33.6	31	28.8	1	33.6	7.8	Wetumpka, Ala.	12	45	51.3	15	11.9	7	32.2	
Melville, La.	108	87	35.4	31	29.8	1	32.4	6.1	<i>Alabama River.</i>	323	85	51.7	15	9.0	8	31.7	
Morgan City, La.	19	8	4.0	9, 24	2.8	15	3.8	1.7	Montgomery, Ala.	246	85	52.9	18	11.8	8	37.0	
<i>Hudson River.</i>									Seima, Ala.							41.1	
Troy, N. Y.	154	14	8.9	1	4.8	20	5.7	4.6	<i>Black Warrior River.</i>								
Albany, N. Y.	147	12	7.4	26	1.7	8	4.2	5.7	Tuscaloosa, Ala.	90	48	61.3	14	16.5	7	35.7	
<i>Delaware River.</i>									<i>Tombigbee River.</i>								
Hancock (E. Branch), N. Y.	287	12	6.4	26	3.6	23, 24	4.4	2.8	Columbus, Miss.	816	83	28.4	15	3.5	31	16.1	
Hancock (W. Branch), N. Y.	287	10	6.9	11	3.4	24	4.5	3.5	Demopolis, Ala.	168	35	61.5	21	41.9	9	51.7	
Port Jervis, N. Y.	215	14	7.5	26	3.0	24	4.7	4.5	<i>Pascagoula River.</i>							19.6	
Philipspburg, N. J.	146	26	8.2	27	2.6	24, 25	4.8	5.4	Merrill, Miss.	78	20	19.8	17-19	3.2	9	12.2	
Trenton, N. J.	92	18	5.0	1, 28	2.3	23, 24	3.6	2.7	<i>Pearl River.</i>							16.6	
<i>North Branch Susquehanna.</i>									Columbia, Miss.	110	18	16.1	29, 30	11.7	11	14.1	
Binghamton, N. Y.	188	14	7.6	11, 26, 27	3.1	23-25	4.7	4.5	<i>Sabine River.</i>							4.4	
Wilkes-Barre, Pa.	60	17	12.2	12	5.1	25	8.2	7.1	Logansport, La.	315	25	17.6	16	4.8	7, 8	9.2	
<i>West Branch Susquehanna.</i>									Beaumont, Tex.	18	10	1.5	8	0.1	14	0.9	
Williamsport, Pa.	39	20	7.0	12	2.6	24, 25	4.6	4.4	<i>Trinity River.</i>							1.4	
<i>Susquehanna River.</i>									Dallas, Tex.	320	25	10.7	1	4.1	8, 26	5.1	
Harrisburg, Pa.	69	17	7.6	1	3.0	24-26	4.8	4.6	Long Lake, Tex.	211	40	10.0	15	3.8	8	5.7	
<i>Shenandoah River.</i>									Liberty, Tex.	20	25	6.9	21, 22	4.9	11	5.7	
Riverton, Va.	58	22	0.8	1, 17	— 0.3	26, 27	0.2	1.1	<i>Brasos River.</i>							2.0	
<i>Potomac River.</i>									Waco, Tex.	285	24	2.6	10	1.1	4-6	1.4	
Cumberland, Md.	290	8	4.5	4	2.8	25-28	3.5	1.7	Hempstead, Tex.	140	40	1.3	14	0.0	*	0.3	
Harper's Ferry, W. Va.	172	18	5.0	1	1.0	27, 28	3.0	4.0	Booth, Tex.	61	89	2.7	15-31	2.5	1-7	2.6	
<i>James River.</i>									<i>Colorado River.</i>							0.2	
Lynchburg, Va.	260	20	5.4	26	1.5	21	2.9	3.9	Austin, Tex.	214	18	1.2	9, 10, 13, 26	0.9	*	1.0	
Columbia, Va.	167	18	10.1	27	6.2	19-21	7.5	3.9	Columbus, Tex.	98	24	5.7	1-4	5.5	12-14, 27-31	5.6	
Richmond, Va.	111	10	3.4	28	0.8	21	1.7	2.6	<i>Red River of the North.</i>	284	26						
<i>Dan River.</i>									Moorhead, Minn. (18)								
Danville, Va.	55	8	2.6	26	0.1	24	0.7	2.5	<i>Snake River.</i>								
<i>Roanoke River.</i>									Lewiston, Idaho	144	24	6.0	81	3.3	14	4.2	
Clarksville, Va.	196	12	3.5	27	0.8	23	1.8	2.7	<i>Columbia River.</i>							2.7	
Weldon, N. C.	129	80	17.5	28	11.6	21-23	13.7	5.9	Wenatchee, Wash.	473	40	7.5	29-31	6.8	*	7.1	
<i>Tur River.</i>									Umatilla, Oreg.	270	25	4.2	31	2.5	16	3.2	
Greenville, N. C.	21	22	11.3	1	5.4	20, 24, 25	7.0	5.9	The Dalles, Oreg.	166	40	7.0	31	3.5	27	3.5	
Moncure, N. C.	171	25	10.5	29	8.1	20, 22	8.6	2.4	<i>Willamette River.</i>								
<i>Cape Fear River.</i>									Albany, Oreg.	118	20	10.7	3	3.9	27, 28	6.3	
Fayetteville, N. C.	112	38	12.8	1	5.9	20, 21	8.2	6.9	Portland, Oreg.	12	15	7.8	4	3.0	27	5.1	
<i>Pedee River.</i>									Red Bluff, Cal.	265	23	12.8	5	6.8	26, 27	8.4	
Cheraw, S. C.	149	27	12.3	28	3.9	21	6.5	8.4	Colusa, Cal.	156	28	20.9	8	15.5	28, 29	17.7	
Smiths Mills, S. C.	51	16	12.3	5	7.6	29	10.4	4.7	Knight's Landing, Cal.	99	18	17.5	1	15.4	29	16.5	
<i>Lynch Creek.</i>									Sacramento, Cal.	64	25	20.9	1	18.6	28-30	19.8	
Efingham, S. C.	85	12	9.0	{ 1, 5, 6, 7	18, 19	6.5	24, 25, 31	7.8	<i>San Joaquin River.</i>							2.3	
<i>Black River.</i>									Pollaskey, Cal.	203	10	1.7	4	0.9	1-3, 20-31	1.2	
Kingstree, S. C.	45	12	6.8	1, 2	5.0	13, 14	5.7	1.3	Firebaugh, Cal.	148	14	5.5	6	3.2	36	4.2	
<i>Catawba-Wateree River.</i>									Lathrop, Cal.	49	14	14.7	1	9.8	30	12.2	
Mount Holly, N. C.	143	15	3.0	14, 28	2.0	*	2.2	1.0							4.9		

\* Various dates.

† 7 days missing.

‡ 4 days missing.

Figures in parenthesis indicate number of days river was frozen during the month.

Honolulu, T. H., latitude  $21^{\circ} 19'$  north, longitude  $157^{\circ} 52'$  west; barometer above sea, 38 feet; gravity correction, —0.057 inch, applied. March, 1909.

Day.	Pressure, in inches.*		Air temperature, degrees Fahrenheit.				Moisture.		Wind, in miles per hour.		Precipitation, inches.		Clouds.								
	8 a.m.	8 p.m.	8 a.m.	8 p.m.	Maximum.	Minimum.	Wet.	Relative humidity.	8 a.m.	8 p.m.	Direction.	Velocity.	8 a.m.	8 p.m.	Amount.	Kind.	8 a.m.		8 p.m.		
																	Direction, from.	Amount.	Kind.	Direction, from.	
1	30.09	30.07	68.0	66.0	71	60	62.0	71	62.0	80	e.	20	ne.	10	0.02	0.12	9	S.-eu.	e.	5	Cu.
2	30.07	30.07	68.1	68.0	73	62	62.2	72	63.5	78	e.	3	e.	10	0.29	0.11	8	S.-eu.	e.	1	N.
3	30.11	30.13	70.2	69.0	75	63	63.3	68	64.0	76	ne.	15	e.	15	0.25	T.	4	Cu.	e.	3	Cu.
4	30.13	30.10	70.0	67.5	71	64	66.0	81	62.5	76	ne.	18	ne.	15	0.01	0.02	8	Ci.-s.	w.	5	Cu.
5	30.09	30.06	71.0	69.0	76	68	62.0	60	64.0	76	e.	8	ne.	2	T.	0.00	Few	Ci.-cu.	e.	1	N.
6	30.05	30.03	69.3	71.0	76	67	63.4	72	66.0	77	ne.	14	e.	15	0.01	T.	4	Ci.-s.	ne.	3	Cu.
7	30.02	29.96	72.8	70.5	77	68	64.7	73	64.5	72	c.	6	sw.	3	0.00	0.00	1	Cu.	e.	Few	Cu.
8	29.95	29.91	70.4	71.5	75	64	65.1	75	67.0	79	n.	1	sw.	3	0.00	0.00	2	Cu.	0(?)	1	S.
9	29.89	29.92	71.6	67.0	76	66	66.0	74	64.0	85	sw.	13	n.	10	0.00	0.07	5	Cu.	sw.	10	S.
10	30.04	30.03	67.8	66.0	72	63	62.3	75	62.5	82	ne.	16	ne.	21	0.02	T.	9	S.-eu.	0	1	S.
11	30.04	30.06	68.0	68.5	70	65	64.0	80	65.0	83	ne.	27	ne.	9	T.	0.03	10	A.-s.	sw.	10	N.
12	30.06	29.99	63.8	68.0	72	60	62.0	91	67.0	95	sw.	6	e.	5	0.49	0.40	5	S.	0	10	N.
13	29.97	29.90	69.0	70.5	72	66	66.0	85	65.0	74	ne.	2	e.	10	0.06	0.13	10	A.-s.	sw.	10	S.
14	29.89	29.91	72.0	68.0	73	67	67.0	77	66.0	90	se.	7	e.	8	0.04	0.21	10	A.-s.	se.	10	S.
15	30.01	30.00	71.0	72.5	76	67	67.2	87	66.0	71	ne.	5	ne.	9	0.08	T.	10	A.-s.	sw.	10	S.
16	30.06	30.07	73.7	71.0	77	70	66.0	66	63.5	66	ne.	14	ne.	3	T.	T.	4	Ci.-s.	0	0	0
17	30.08	30.10	71.5	71.0	76	66	65.0	70	64.0	68	ne.	10	ne.	17	T.	T.	5	A.-eu.	0	3	Cu.
18	30.12	30.13	70.6	70.0	74	66	63.0	66	63.0	68	ne.	16	e.	18	T.	T.	6	A.-s.	0	0	0
19	30.13	30.11	68.0	71.0	74	64	62.1	72	63.0	64	ne.	19	ne.	22	0.02	0.02	3	Ci.-s.	0	0	0
20	30.15	30.13	71.2	71.0	76	65	62.4	61	64.0	68	e.	18	e.	7	0.00	0.00	1	S.-eu.	w.	0	0
21	30.14	30.13	72.0	69.3	78	67	65.0	69	64.0	75	ne.	4	ne.	14	T.	0.04	9	Ci.-s.	w.	1	A.-s.
22	30.16	30.15	70.5	70.0	75	64	62.2	62	62.0	64	ne.	10	ne.	10	0.16	0.08	3	Cu.	e.	2	Cu.-n.
23	30.20	30.19	71.4	71.0	76	66	62.2	60	63.0	64	c.	18	e.	20	T.	0.00	7	Cu.-n.	e.	3	A.-s.
24	30.21	30.18	72.0	69.5	75	64	62.5	59	62.0	66	ne.	9	ne.	5	T.	0.00	8	S.-eu.	ne.	2	Cu.
25	30.21	30.18	67.0	67.0	74	62	60.0	66	61.5	73	ne.	10	ne.	8	0.16	0.03	9	S.-eu.	ne.	6	Cu.
26	30.21	30.19	69.1	69.0	72	64	61.0	63	62.0	67	ne.	8	ne.	12	0.35	0.01	9	S.-eu.	ne.	10	Cu.
27	30.22	30.18	69.0	68.0	73	65	61.1	63	62.0	71	ne.	16	e.	10	0.01	T.	1	Ci.-s.	0(?)	8	Cu.
28	30.17	30.11	68.1	65.5	73	63	61.5	69	63.0	87	ne.	4	ne.	4	0.01	0.02	9	S.-eu.	e.	5	N.
29	30.11	30.07	67.0	70.0	74	65	63.3	82	64.0	72	ne.	8	e.	4	0.07	T.	9	S.-eu.	e.	4	Cu.
30	30.11	30.07	68.0	70.0	77	65	65.0	85	64.0	72	ne.	5	e.	5	0.05	T.	7	A.-s.	ne.	9	Cu.
31	30.08	30.04	70.3	70.0	75	66	64.0	71	64.0	72	sw.	4	ne.	12	T.	0.13	6	N.	ne.	2	Cu.
Mean....	30.089	30.070	69.7	69.2	74.4	64.9	63.5	71.8	63.8	74.5	ne.	10.6	ne.	10.2	2.10	1.37	7.9	S.-eu.	e.	5.2	Cu.

Observations are made at 8 a.m. and 8 p.m., local standard time, which is that of  $157^{\circ} 30'$  west, and is 5 $^{\circ}$  and 30' slower than 75 $^{\circ}$  meridian time. \*Pressure values are reduced to sea level and standard gravity.

#### RAINFALL IN JAMAICA.

Through the kindness of Mr. Maxwell Hall, meteorologist to the government of Jamaica and now in charge of the meteorological service of that island, we have received the following data:

##### Comparative table of rainfall.

[Based upon the average stations only.]

FEBRUARY, 1909.

Divisions.	Relative area.	Number of stations.	Rainfall.	
			1909.	Average.
Northeastern division.....	25	17	2.75	4.79
Northern division.....	22	41	0.77	2.55
West-central division.....	26	20	1.76	2.67
Southern division.....	27	26	1.24	1.89
Means.....	100		1.68	2.98

The rainfall over the island for February was therefore 1 inch below the average.

The greatest rainfall, 12.05 inches, was recorded at Shrewsbury, and a great many places in the northern and southern divisions had no rain during this month.

At Georgetown, Grand Cayman, 1.64 inches fell on four days. The greatest fall was 1.13 inches on the 21st.

MARCH, 1909.

Divisions.	Relative area.	Number of stations.	Rainfall.	
			1909.	Average.
Northeastern division.....	25	17	3.83	3.33
Northern division.....	22	41	2.86	2.11
West-central division.....	26	20	3.76	3.62
Southern division.....	27	26	1.52	2.13
Means.....	100		2.87	2.79

The rainfall over the island for March was therefore the average.

The greatest rainfall, 19.46 inches, was recorded at The Vinery; and no rain fell at Alligator Pond and Low River this month.

On the 6th an extraordinary rainfall occurred on a line between Buff Bay and Ocho Rios; the places affected between these extremes, were Vinery, Agualta Vale, Water Valley, Albany, Hampstead, and Gayle. At these places an average of 14 inches fell and did a great deal of damage to the road. The rain did not approach from the sea as is so usual in the northeast division, because the rainfall at Port Maria was much less than further inland, and the same thing occurred again at Buff Bay.

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